

## IGNITION SYSTEM WITH MULTIPLEXED COMBUSTION SIGNALS

### Abstract

A plurality of ignition coils having a combustion detection capability, such as an ion sense capability or cylinder pressure detection capability, are connected  
5 to a common communication line. The combustion signals for the plurality of ignition coils is multiplexed on the common communication line. The combustion signal for each ignition coil/cylinder is applied to the common line combined with a respective sync signal such as a current flag signal or a respective electronic spark timing (EST) signal. The sync signals allow each ignition coil to determine when it can transmit its  
10 combustion signal.